

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (previously presented) A process for producing oils with a high viscosity index from a feed containing constituents with boiling points of more than about 300°C comprising

- a) reacting hydrogen with the feed or with a mixture of the feed with at least a fraction of a stream recycled from c), in the presence of a catalyst comprising at least one amorphous non zeolitic matrix and at least one metal or compound of a metal from group VIII of the periodic table and/or at least one metal from group VIB to produce an effluent;
- b) fractionating at least a portion of the liquid effluent obtained from a) so as to separate at least one oil residue comprising mainly constituents with viscosity indices which are higher than that of the feed;
- c) fractionating at least a portion of the oil residue obtained in b) by thermal diffusion into oil fractions with high viscosity indices and separating the oil fractions in accordance with their viscosity index, and recycling at least part of at least one fraction with low viscosity index from c) to a).

Claim 2 (previously presented) A process according to claim 1, in which b) is preceded by a d) for bringing at least a portion of the effluent obtained in a) into contact with hydrogen in the presence of a catalyst comprising at least one zeolite, at least one matrix, and at least one metal or

compound of a metal from group VIII of the periodic table and/or least one group VIB metal, the effluent obtained from d) being sent to c).

Claim 3 (previously canceled)

Claim 4 (previously presented) A process according to claim 2, in which at least a portion of unconverted fractions recovered in a) or d) are recycled either to a) or to d) or partially to both a) and d).

Claim 5 (previously presented) A process according to claim 2, in which recycle streams from c) comprising fractions from c) with low viscosity indices, are recycled at least partially to both a) and d).

Claim 6 (previously presented) A process according to claim 4, in which oil residue obtained in b) and/or non-recycled fractions extracted from c) are dewaxed with a catalyst or a solvent, the paraffins from this dewaxing step being recycled either to a) or to d) or partially to both a) and d).

Claim 7 (previously presented) A process according to claim 1, in which matrix for the catalyst of a) as selected from group consistent by alumina, silica, silica-aluminas, magnesia, clays and mixtures of at least two of said minerals.

Claim 8 (previously presented) A process according to claim 1, in which the catalyst of a) comprises a total concentration of oxides of metals from group VIB and VIII in the range of about 5% to 40 % by weight, with a ratio between the metal (or metals) from group VIB and the metal (or metals) from group VIII, expressed as the metal oxides, of about 20 to 1 by weight.

Claim 9 (previously presented) A process according to claim 2, in which the zeolite for the catalyst of d) is an acid zeolite HY characterized by a $\text{SiO}_2/\text{Al}_2\text{O}_3$ mole ratio in the range about 8

to 70; a sodium content which is less than about 0.15% by weight, determined using the zeolite calcined at 1100°C; a lattice parameter a of the unit cell in the range about 24.55×10^{-10} metres (m) to 24.24×10^{-10} m; a sodium ion take-up capacity C_{Na} , expressed as grams (g) of sodium per 100 g of modified zeolite, neutralised then calcined, of more than about 0.85; a specific surface area, determined by the BET method, of more than about $400 \text{ m}^2/\text{g}$; a water vapour adsorption capacity at 25°C at a partial pressure of 2.6 torrs of more than about 6% by weight, a pore distribution with in the range about 1% to 20% of the pore volume contained in pores with a diameter located between about 20×10^{-10} metres and 80×10^{-10} metres, the remainder of the pore volume being contained in pores with a diameter of less than 20×10^{-10} metres, and a zeolite mass in the range of 2% to 80 % with respect to the catalyst used in d).

Claim 10 (previously presented) A process according to claim 2, in which matrix for the catalyst of d) is selected from group consisting of alumina, silica, silica-aluminas, alumina-boron oxide, magnesia, silica-magnesia, zirconia, titanium oxide and clay, these compounds being used alone or as a mixture.

Claim 11 (previously presented) A process according to claim 2, in which the catalyst of d) comprises a total concentration of oxides of metals from group VIB and VIII in the range from about 1% to 40% by weight, the ratio between the group VIB metal or metals and the group VIII metal or metals, expressed as the metal oxides, being the range about 20 to 1.25 by weight, and the concentration of phosphorous oxides being less than about 15% by weight.

Claim 12 (previously presented) A process according to claim 2, in which a) and d) are carried out at an absolute pressure in the range about 2 to 35 MPa, a temperature in the range about 300°C to 550°C, a hourly space velocity in the range about 0.01 to 10 h^{-1} , in the presence of hydrogen, the H_2/HC ratio being in the range about 50 to $5000 \text{ Nm}^3/\text{m}^3$, the conditions for a) and d) being identical or different.

Claim 13 (previously presented) A process according to claim 1, in which c) of the process is carried out in at least one thermal diffusion column with a height in the range about 0.5 to 30 metres (m), comprising two tubes placed one inside the other, the oily residue circulating in the space formed by said two tubes, the space between said two tubes being in the range from about 1 millimetre (mm) to 20 centimetres (cm); the temperature difference between the wall of the internal tube and the wall of the external tube being in the range about 25°C to 300°C, the wall of the internal tube being kept at a temperature which is less than that of the wall of the external tube.

Claim 14 (previously presented) A process according to claim 9, in which the catalyst of a) comprises a total concentration of oxides of metals from groups VIB and VIII in the range of about 5% to 40% by weight, with a ratio between the metal from group VIB and the metal from group VIII, expressed as metal oxides, of about 20 to 1 by weight.

Claim 15 (previously presented) A process according to claim 9, in which the matrix of the catalyst for d) is selected from the group consisting of alumina, silica, silica-alumina, alumina-boron oxide, magnesia, silica-magnesia, zirconia, titanium oxide and clay, these compounds being used alone or as a mixture.

Claim 16 (previously presented) A process according to claim 9, in which the catalyst for d) comprises a total concentration of oxides of metals from groups VIB and VIII in the range from about 1% to 40% by weight, the ratio between the group VIB metal and the group VIII metal expressed as metal oxides, being in the range about 20 to 1.25 by weight, and a concentration of phosphorous oxides being less than about 15% by weight.

Claim 17 (previously presented) A process according to claim 15, in which the catalyst for d) comprises a total concentration of oxides of metals from groups VIB and VIII in the range from about 1% to 40% by weight, the ratio between the group VIB metal and the group VIII metal expressed as metal oxides, being in the range about 20 to 1.25 by weight, and the concentration of phosphorous oxides being less than about 15% by weight.

Claim 18 (previously presented) A process for producing oils with a high viscosity index from a

feed containing constituents with boiling points of more than about 300°C comprising

- a) reacting hydrogen with the feed or with a mixture of the feed with at least a fraction of a stream recycled from c), in the presence of a catalyst comprising at least one amorphous non zeolite matrix and at least one metal or compound of a metal from group VIII of the periodic table and/or at least one metal from group VIB to produce an effluent;
- b) fractionating at least a portion of the liquid effluent obtained from a) so as to separate at least one oil residue comprising mainly constituents with viscosity indices, which are higher than that of the feed;
- c) fractionating at least a portion of the oil residue obtained in step b) by thermal diffusion into oil fractions with high viscosity indices, and separating the oil fractions in accordance with their viscosity index with proviso that b) is not preceded by treatment of the effluent of a) with hydrogen in the presence of a zeolite.

Claim 19 (previously presented) A process according to claim 6, in which dewaxing is conducted in the presence of a molecular sieve having a bridging distance at most 0.75 nm.

Claim 20 (previously presented) A process according to claim 6, in which dewaxing is conducted in the presence of a molecular sieve having a bridging distance of 0.50 to 0.75 nm.

Claim 21 (previously presented) A process according to claim 2, further comprising

a) fractionating the effluent obtained from a) or d) in at least one separator, into at least one gaseous effluent, which is evacuated and into at least one liquid effluent which is sent to b).